

# **Personality and learning preferences of students in design and design-related disciplines**

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### **Abstract**

This paper explores the thinking and learning styles of art-based design students, and reports a personality survey of typical design students at two UK universities. Where teaching and learning styles do not match, there may be cognitive dissonance leading to poor knowledge transfer. Students state that they have such problems with their studies. Designers' strategies for problem-solving are different to many other professionals, and an intuitive way of working is preferred strongly. It is demonstrated that designers also have related styles of learning, and suitable treatments are proposed to match teaching and learning. Though designers' learning seems to be well matched to the teaching mostly employed in design schools, concern is expressed about current economic and other pressures which threaten its continuance.

### **Introduction**

The study reported here arose from an investigation into the possibility of matching styles of teaching with styles of learning by art-based design students in the context of adaptive computer aided learning (CAL). This led to an examination of the personality characteristics of designers, cognate professionals, and others. In the course of this study, some fundamental differences were revealed in the worldviews adopted by different occupational groups which affect instructional models, type of content, and control of the learning process.

### **Creativity**

Creativity is central to designers' thinking, though their methods of working and their attitudes toward the solving of problems may be very different to other professionals. For example, in a study of problem-solving (Kotler & Armstrong 1996: 45) it was found that architecture students approached the task by a willingness to propose solutions, and only after deciding on a solution did they analyse it for underlying rules or principles. Science students, on the other hand, proceeded step-by-step to analyse the problem and seek to understand the principles involved. Designers' creativity also seems to be linked strongly to intuition. For example, a psychological study of American architects showed the most creative among them to have intuition as a strong preference (Stabell & Oystein 1998). A study of Royal Designers for Industry had similar results: these designers reported that, in choosing between various ideas generated, they know when the right idea presents itself, though this process they found difficult to verbalise (Thorvald & Sigholt 1995).

### **Teaching and learning**

Study behaviours stem from cognitive preferences which are broadly manifested as personality. Specific learning preferences are called learning styles, and they serve as stable indicators of how learners perceive and interact with learning environments (Amdam 1998). Though individuals may adopt different learning strategies at times, learning style can be seen as the preferred manner in which information is processed. In the case of designers, it has been proposed that their styles of learning may be linked with their particular styles of designing (Haanes 1997).

Teachers also have styles these are characteristic ways of teaching which emanate from their own personalities and preferences. Where there is a mismatch between styles of teaching and learning, the student may experience psychological discomfort, and knowledge transfer may be impeded. Students have commented on this mismatch: in structured interviews (Armstrong 1996: 34-46) they have stated that, for example, comprehension may be difficult where a lecturer delivers material at too fast a pace; or that understanding has to keep in synchronicity with the lecture or series. If there is a lack of understanding at a particular point in the linearity of exposition, then understanding gets out of step with teaching and may not recover.

Across various subjects, the nature of tuition varies widely, though it is probable that specific tuition used by subject specialists is broadly appropriate for the students who have chosen to study that subject. A large scale psychometric study of engineering students assessed personality and learning preferences, and compared these results with tutors (Reve 1992). The conclusion was that teaching and learning are well matched for most engineering students. However, the study also highlighted that in schools of engineering there is a concentration of certain types of engineering tutor who are likely to teach in styles incompatible with many of their students.

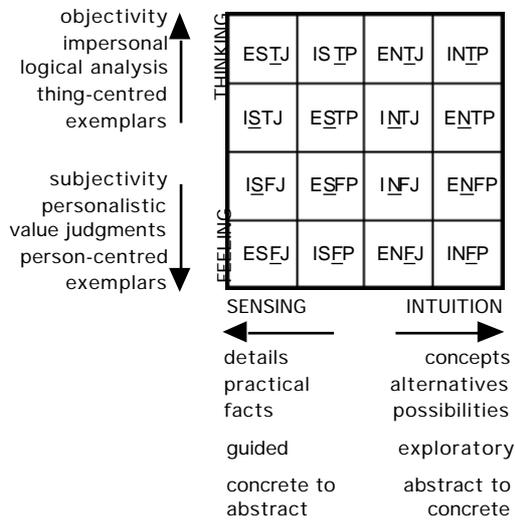


Fig. 1: Learning preferences

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### Conclusions

It has been demonstrated that the learning styles of individuals differ, and that there are styles which are characteristic of occupational groups. However, not all members of a group will share exactly the same style. One kind of treatment is therefore insufficient to cater for the needs of an entire group. A simple matrix of learning styles has been outlined. Broadly, designers prefer teaching which begins with the big picture, with concepts, and then explains details; is focused toward future possibilities and gives alternative viewpoints; has lightweight structure, allowing for guided exploration; mostly shows objective data, is logical and analytical, and is based on exemplars showing things.

There are several implications which arise from these findings, and which impinge upon design education. Designers are quite different to a general population, and also different to many colleagues from other disciplines. It is also interesting to speculate about the significance of these findings in the context of changes in education, particularly at a time when traditional studio based teaching and the nurturing of an intuitive way of working are under threat both from advances in information technology, and the harsher economics which may affect the delivery of higher education programmes in the future.

(2450 words)

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